College, Columbia University, to purchase the three blocks of land adjoining Columbia College. Mr. Joseph Pullitzer has given 3000*l.* for scholarships to the university. From the will of Dr. Thomas W. Evans, the City of Philadelphia will receive about 800,000*l.* for the "Thomas W. Evans Museum and Institute Society." Mr. John D. Rockefeller has offered to duplicate money raised by Acadia College, in Wolfville, N. S., up to 20,000*l.* before January 1, 1908; he has also offered to pay two-thirds of the cost of a building for the University of Nebraska to be used for social and religious purposes, on condition that the remaining third of the 20,000*l.* be contributed within about a year, and to give Denison College, Newark, Ohio, 12,000*l.* if the institution will raise a like sum by January 1, 1904, for the construction of additional buildings. Chicago Yale alumni give 500*l.* a year for the establishment of four Yale scholarships. Dr. Elizabeth L. McMahon left 1600*l.* to found a scholarship in Vassar College for daughters of deceased physicians. Colby University, Maine, receives 1000*l.* by the will of the late Robert O. Fuller, of Cambridge, Mass. The will of Mrs. Susan Bevier gives 10,000*l.* to the Rochester Athenæum and Mechanics' Institute. Mrs. Helen F. Ackley has left to Wesleyan University a bequest of 400*l.*, the income from which is to be used for the benefit of one or more women students. Mr. Andrew Carnegie has given 50,000*l.* for an extension of the Mechanics and Tradesmen's Institute, New York City. Dr. D. K. Pearsons has given Winter Park, Florida, 10,000*l.*, and Kingfisher College, Oklahoma, 5000*l.* The late Ario Wentworth, of Salem, Mass., left 20,000*l.* to the Massachusetts Institute of Technology. Mrs. Vail, wife of Prof. Vail, has given Hobart College 1000*l.* The late Walter D. Pitkins has bequeathed 2000*l.* to Yale University. Mr. Francis L. Stetson, of New York, has given 5000*l.* to Williams College. Mr. Robert C. Billings has given the same sum to Wellesley College. Mr. Henry Denhart, of Washington, Ill., announces a further gift of 29,000*l.* to Carthage College. He offers 20,000*l.* for the endowment fund providing that the same amount be raised in the college territory, half of the expense of any new buildings erected up to 10,000*l.*, and 5000*l.* cash.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, May 28.—"On the Adaptation of the Pancreas to different Foodstuffs." Preliminary Communication. By F. A. **Bainbridge**, M.B., M.R.C.P. Communicated by Prof. E. H. Starling, F.R.S.

The author's observations have been made in the hope of determining, first, whether the composition of pancreatic juice (as regards its enzymes) varies in response to the stimulus of different foodstuffs, and, secondly, by what means this adaptation is carried out. The enzyme studied was lactase, which converts lactose into galactose and dextrose, and the degree of inversion produced by the enzyme was estimated by Pavy's method.

It was found that when dogs were fed on milk for two or three weeks, their pancreatic juice contained lactase, whereas the pancreatic juice of adult dogs not fed on milk contained no lactase. It seemed clear, therefore, that a definite foodstuff—lactose—caused the pancreas to secrete an enzyme capable of producing (in the lactose) digestive changes; in fact, the pancreatic juice varied in composition with different diets. It is believed by Pawloff and others that this adaptation is carried out entirely by a nervous mechanism, and that a given food reflexly excites the pancreas to secrete a juice specially adapted for the digestion of that particular foodstuff, and Weinland has adopted this view as regards the lactase of the pancreas.

However, Weinland's observation that lactose injected subcutaneously did not cause the formation of lactase by the pancreas suggested to the author that the intestinal mucous membrane must be concerned in the production of lactase, and that possibly the process was chemical rather than nervous. The author found that when an extract of the intestinal mucous membrane of a dog fed on milk was injected into a second biscuit-fed dog, the pancreatic juice of the latter contained lactase. On the other hand, when a watery extract of the intestinal mucous membrane of a *biscuit-fed* dog was injected intravenously into a second biscuit-fed dog, the pancreatic juice of the latter contained no lactase. These results suggest that, in consequence of the action of the intestinal mucous membrane on lactose, some substance is formed which passes by the blood-stream to the pancreas, where it stimulates the latter to manufacture a specific enzyme-lactase. If this proves to be the case, the whole process of adaptation must be chemical rather than nervous.

"Hydrolysis of Fats *in vitro* by means of Steapsin." By Dr. J. **Lewkowitsch** and Dr. J. J. R. **Macleod.**

Experiments which one of the authors (J. L.) had made with lipase prepared from pig's liver had not led to a higher hydrolysis of cotton-seed oil than 3 per cent. A fresh series of experiments was, therefore, commenced jointly by the authors with steapsin. Preparations of steapsin were obtained by mincing 200 grams of fresh pig's pancreas and triturating it in a mortar with twice the bulk of water. The preparations were not incubated at the body temperature, as previous experiments had proved that steatolytically active preparations had lost considerably in steatolytic power by being kept at 37° C.

The experiments were carried out by triturating in a mortar varying quantities of the steapsin preparations with cotton-seed oil until an emulsion was obtained. Unless the preparation and the oil form a thorough emulsion, no action of the ferment can be expected. If the emulsions are allowed to stand, hydrolysis commences after a few days, and reaches in the course of a few weeks a very considerable amount. Hydrolysis up to 86 per cent. was obtained after a lapse of a few months in the case of cotton-seed oil. Lard has not given so high a percentage of hydrolysis, although the opposite result would have been expected, inasmuch as the consistency of lard favours the state of emulsion.

Steapsin does not seem to produce the reversible action which other enzymes have been shown to exert. So far, small quantities of acid or alkali do not appear to influence the action of the ferment.

The foregoing experiments prove for the first time that it can be demonstrated by the usual quantitative methods of fat analysis that steapsin is a very powerful fat-splitting ferment.

June 11.—"The Measurement of Tissue Fluid in Man." Preliminary Note. By George **Oliver**, M.D., F.R.C.P. Communicated by Sir Lauder Brunton, F.R.S.

The object of this preliminary note is to indicate a method by which the tissue fluid in man may be measured, thus enabling the observer to ascertain the conditions under which it is effused and disposed of.

In the course of some observations made with the view of eliminating tissue fluid as a cause of variability in the samples of blood obtained for examination, the author found that the rolling of a tight rubber ring over the finger from the tip to beyond the interphalangeal joints will, as a rule, considerably raise the percentages of the blood corpuscles and of the hæmoglobin. The author could not arrive at any other conclusion than that the ring not merely empties the vessels, but likewise clears away any tissue fluid present in the skin and subcutaneous tissues. The needle, in puncturing the capillaries, liberates a certain portion of lymph from the areolar tissue which surrounds them, and this dilutes the blood. When, however, both fluids have been dispersed as much as possible by the compression of the firm rubber ring, a puncture made just before removing the ring yields blood *per se*; for the blood instantly returns to the vessels, whereas an appreciable interval must elapse before the lymph reappears, or is exuded afresh. The author therefore inferred that the reading of the difference in the percentage of the corpuscles, or of the hæmoglobin, before and after the use of the ring, provides a measure of the tissue-lymph, and makes the study of the circulation of it in man possible.

This simple method having furnished somewhat unexpected results, the author accepted them at first with reserve; and, for some time, the data were allowed to accumulate, until at last it was quite apparent that they invariably fell into the same order. Inasmuch as the method did not provide results which were exceptional or erratic, or contradictory and unaccountable, trust on it became gradually established by the mere repetition of the observations.

A number of observations have been made on normal subjects leading a quiescent life, with comparative rest of the muscles; and on persons subjected to varying degrees of exercise, and to different temperatures and altitudes. In this note the author limits himself, however, to a statement of results obtained in the former class of subjects only.

The numerous observations which this inquiry necessitated on the corpuscles, and on the hæmoglobin, were made by the hæmocytometer tubes and the hæmoglobinometer, which were described by the author before the Physiological Society some few years ago (see *Journal of Physiology*, Cambridge and London, vol. xix. p. 15), and the specific gravity of the blood was determined by Roy's method. The blood-pressures (arterial, capillary, and venous) were read by the hæmodynamometer (*ibid.*, vols. xxii., xxiii.), and Hill and Barnard's sphygmometer, and Prof. Gärtner's tonometer, were also occasionally used in determining the arterial pressure.

Some of the general conclusions afforded by the observations may be thus epitomised :—

(1) The amount of tissue fluid varies at different times in the course of the day, and each variation is of short duration.

(2) The ingestion of food produces a rapid flow of lymph into the tissue spaces, which in an hour after the meals acquires its maximum development, and then it slowly subsides, and only ceases to be apparent after the lapse of from 3 to 4 hours.

(3) The digestive curve of variation always follows the same general type; the rise being rapid, the acme short, and the subsidence gradual. The variations were observed to follow this well-defined order in all the healthy subjects so far submitted to observation. The curve of variation is, therefore, rhythmical—the wave abruptly rising to an acme and then somewhat slowly subsiding.

The following are two examples :—

Example 1.

	Corpuscles per cent.		Diff.	Per-centage of lymph.
Before the meal (breakfast)	99[1]	(4,950,000 per c.mm.)	200,000	4
	103	(5,150,000 ,,)		
1 hour after ...	91	(4,550,000 ,,)	750,000	15
	106	(5,300,000 ,,)		
2 hours after ...	94	(4,700,000 ,,)	550,000	11
	105	(5,250,000 ,,)		
3 hours after ...	96	(4,800,000 ,,)	400,000	8
	104	(5,200,000 ,,)		
4 hours after ...	98	(4,900,000 ,,)	150,000	3
	101	(5,050,000 ,,)		

Example 2.

	Corpuscles per cent.		Diff.	Per-centage of lymph.
Before the meal (dinner)	99	(4,950,000 per c.mm.)	None	0
	99	(4,950,000 ,,)		
1 hour after ...	91	(4,550,000 ,,)	850,000	17
	108	(5,400,000 ,,)		
2 hours after ...	94	(4,700,000 ,,)	600,000	12
	106	(5,300,000 ,,)		
3 hours after ...	104	(5,200,000 ,,)	None	0
	104	(5,200,000 ,,)		

(4) The amount of lymph is proportionate to the rise of the mean arterial and capillary pressures, and these pressures have been found to follow exactly the same prolonged rhythmical course after the ingestion of food as does the effusion of lymph.

The following example shows the agreement between the blood-pressures and the amount of lymph :—

	Percentage of lymph.	Mean arterial pressure.
Before the meal	None	100 c.mm. Hg.
½ hour after	10	110 ,,
1 hour after...	16	116 ,,
1½ hours after	8	108 ,,
2 hours after	5	105 ,,
3 hours after	None	100 ,,

[1] The figure on the first line represents the percentage of corpuscles before, and the figure on the second line that after, compression of the finger by the rubber ring.

The method devised for observing the capillary pressure is not quite so delicate for the smaller variations as could be wished, and the author hopes to improve it; but it is sufficiently definite to show that the capillary blood-pressure is raised throughout the digestive circulatory disturbance, and especially so at the acme of it, and falls again at the close of it. When the mean arterial pressure is 100 c.mm. Hg before a meal, as in the above example, the capillary blood-pressure will read 20 c.mm. Hg; and in an hour after the meal, when the arterial pressure rises to 115 c.mm. Hg, or so, the capillary pressure will rise to at least 30 c.mm. Hg. Though this is a large relative rise, the author's observations show that it is not less than this, and that it is often more.

Physical Society, June 12.—Dr. R. T. Glazebrook, F.R.S., president, in the chair.—Some experiments on shadows in an astigmatic beam of light, by Prof. S. P. **Thompson.** Two years ago Prof. Thompson showed before the Society some experiments on the shadows formed when a thin rod is placed in a beam of light which has passed through a tilted plano-convex lens. In those experiments the peculiar effects were chiefly due to the aberration known as coma. Following up his experiments, Prof. Thompson has investigated the shadows produced when a thin rod is placed in an astigmatic beam.—On a method of determining the viscosity of pitch-like solids, by Prof. F. T. **Trouton** and Mr. E. S. **Andrews.** The various methods which have been proposed for measuring viscosity meet with difficulties when it is attempted to apply them for the measurement of the viscosity of bodies such as pitch. To obviate some of these difficulties a method has been devised in which a constant torque is applied to a cylinder of the substance, and the relative rate of rotation of the ends is observed. From these and the dimensions of the cylinder, the viscosity can be calculated by means of a formula deduced in the paper.—The positive ionisation produced by hot platinum in air at low pressures, by Mr. O. W. **Richardson.** The experiments described in this paper were almost all made at temperatures so low that there was no appreciable negative ionisation. In examining the relation between the current from a positively charged hot platinum wire and the applied E.M.F. at low pressures, results were obtained which indicated that the value of the current fell off with time when the other conditions were kept constant. Further experiments showed that the current died away rapidly at first until it reached a steady value which only disappeared gradually.

Royal Astronomical Society, June 12.—Prof. H. H. Turner, F.R.S., president, in the chair.—The president announced the death of Dr. A. A. Common, and a vote of condolence with his relatives was put from the chair and passed by the meeting.—A letter (accompanying a paper on the present condition of the lunar theory) from Mr. **Nevill,** director of the Natal Observatory, was read, in which the writer stated that the reductions desired by Prof. Newcomb had already been made, and were awaiting publication at the Natal Observatory.—The secretary read a paper, by Prof. E. W. **Brown,** on the verification of the Newtonian law, which gave rise to a discussion in which Prof. Newcomb and others took part.—Mr. **Newall** exhibited and explained a series of slides from spectroheliographs of solar faculæ, &c., taken by a new method by Prof. G. E. Hale at the Yerkes Observatory, and Dr. Lockyer showed slides taken at South Kensington.—Mr. E. W. **Maunder** read a paper by himself and Mr. J. E. Evans on experiments as to the actuality of the "canals" observed on Mars. A drawing of the planet, showing no canals, had been placed before classes of boys at the Greenwich Hospital School, who were set to copy it. It was found that those closest to the original, and therefore able to see the actual detail, drew no canals, but those placed at a further distance made copies in which they delineated canals, in many cases almost exactly as they are represented in drawings by Schiaparelli and others. The author's conclusion was that the so-called "canals" were mainly the interpretation by the observer of faint markings just at the limit of visibility. It also appeared that observers were inclined to prolong into lines any projecting points on the edges of the Martian "seas," and also to draw hard lines at the boundaries of faint shades. Mr. Maunder was convinced that the boys employed in the

experiments were not biased by any knowledge of drawings of Mars showing "canals."—Dr. Johnstone **Stoney** read a paper on an examination of Mr. Whittaker's "undulatory explanation of gravity" from a physical standpoint.—Father **Cortie** read a paper on the spectrum of sun-spots in the region B to D.—Photographs of nebulæ in Auriga, by Dr. Max **Wolf** and Dr. Isaac **Roberts,** were shown on the screen.—A paper by Dr. **Lockyer** on a probable relationship between solar prominences and coronal streamers was taken as read, as well as a paper by Dr. A. W. **Roberts** on the relation between the light changes and orbital elements of close binary systems.—The president briefly noticed a paper by Mr. **Bellamy** on the positions of stars around Nova Geminorum, and also a paper of his own on the possible identity of the Nova with a small star that had been previously photographed by Mr. Parkhurst and Dr. Max Wolf. Prof. Turner concluded that this faint star was not precisely in the place of the Nova.

Zoological Society, May 26.—Mr. G. A. Boulenger, F.R.S., vice-president, in the chair.—Mr. G. A. **Boulenger,** F.R.S., read a paper on the collections of batrachians and reptiles made at Chapadá, Matto Grosso, during the Percy Sladen Expedition to Central Brazil. One species of reptile was described as new to science under the name of *Norops sladeniae*.—A second paper on the collections made at Matto Grosso was contributed by Mr. Edgar A. **Smith.** It contained an account of the shells of the family Bulimulidæ, which was referable to three species.—A communication from Mr. F. F. **Laidlaw** dealt with the collection of acotylean polyclads made by Mr. Cyril Crossland in Zanzibar in 1901–02. Specimens of nine species were contained in the collection, eight of which proved to be new.—Mr. W. **Bateson,** F.R.S., read a paper on the inheritance of colour in fancy rats and mice, in which he gave an account of the work already published relating to the subject, and communicated new observations. The author analysed the evidence at his disposal, showing how far it conformed to Mendel's principles of heredity, and stated the difficulties which were encountered in attempting to apply those principles to certain of the specific results already witnessed. It was hoped that the chief colour-types might be figured in order to promote uniformity of nomenclature.

Geological Society, May 27.—Mr. E. T. Newton, F.R.S., vice-president, in the chair.—An experiment in mountain-building, by the Right Hon. the Lord **Avebury,** P.C., F.R.S. Various observers have endeavoured to throw light on the origin of mountains by compressing pieces of cloth, &c. In these cases, however, the pressure was only in one direction. The author wished to obtain a method of producing compression in two directions at right angles to one another; and, accordingly, he had an apparatus constructed consisting of four beams of wood, which could be approximated by means of screws. In the space, 2 feet across and 9 inches in depth, were placed pieces of carpet-baize and layers of sand, each about 1½ inches deep. The beams were then caused to approach one another until the sand rose in the centre into contact with the glass cover, against which it was flattened out. Casts were made of the surfaces of the different baize-layers, and it was found that in the lower layers the ridges were narrower, shorter, more precipitous, and more broken up than in the higher layers. A second series of casts was exhibited, with the sand and baize having been arranged as before, but with the weight placed on one side. The ridges followed the edges, though not closely, leaving a central hollow. There was a difference between the higher and lower layers, similar to that seen in the first experiment.—The Toarcian of Bredon Hill (Worcestershire), and a comparison with deposits elsewhere, by Mr. S. S. **Buckman.**—Two Toarcian ammonites, by Mr. S. S. **Buckman.** Two ammonites, belonging to the family Hildoceratidæ, found by members of the Cotteswold Naturalists' Field Club, are described and named.

Linnean Society, June 4.—Mr. G. S. Saunders in the chair.—Mr. F. N. **Williams** showed a series of 100 drawings of British Compositæ, 20 being Hieracia, drawn in pen-and-ink by Mr. E. W. Hunnybun, of Huntingdon.—Mr. George **Massee** showed a remarkable felted lining of fungus mycelium of a Polyporus taken from the interior of the node of a bamboo; the specimen belonged to Sir D. Brandis.—Colonel George **Colomb** sent for exhibition a fragment of a branch of a thorn from Hyde Park. This branch shows the mischief done to thorns near London by the larvæ of what had been identified as belonging to the wood leopard moth, *Zeuzera Æsculi*, Linn. The house sparrow was stated to destroy numbers of the perfect insect on their emergence.—Sir Dietrich **Brandis,** K.C.I.E., F.R.S., showed herbarium and museum specimens, from Kew, of *Gelsemium elegans*, Benth., a plant possessing powerfully poisonous properties.—On the anatomy and development of *Comys infelix*, Embleton, a Hymenopterous parasite of *Lecanium hemisphericum*, by Miss Alice L. **Embleton.** The only paper already published on this subject is that by Bugnion on the anatomy, development and habits of an allied fly (*Encyrtus fuscicollis*) parasitic in a caterpillar; there are numerous omissions in the results he records. The present paper also leaves points unexplained, but the author has been able to add some valuable facts to the knowledge upon the subject, the insect on which she has worked being *Comys infelix*, a new species.—Notes on the transition of opposite leaves into the alternate arrangement: a new factor in morphologic observation, by Mr. Percy **Groom.** The author stated that his observations began on *Atriplex rosea*, and to make a graphic representation of results, he plotted the length of the internodes in a given manner, which produced a regular curve; when this principle was applied to Chenopodium and Salsola an entirely different result came out, and a zig-zag course was plotted, due to the long and short internodes alternating; at first he suspected this might be due to its nearness to salt water, but inland specimens told the same tale, and neither the influence of day and night nor of salinity could account for it. His belief was that the fusion of branch and stem was the true solution, for axillary branches are given off, but without visible traces of the fusion which does exist; in Salicornia, for instance, the leaves are fused up to the next node above. Observations have been made with a number of other plants as regards the arrangement of leaves and inflorescence.

PARIS.

Academy of Sciences, June 15.—M. Albert Gaudry in the chair.—On the conditions afforded for astronomical observations at the observatory of the Pic du Midi, by MM. B. **Baillaud** and H. **Bourget.** Preliminary experiments with three telescopes showed that this observatory forms an excellent station for astronomical observations.—On the existence of solar radiations capable of traversing metals, wood, &c., by M. R. **Blondlot.** The rays previously discovered by the author in the radiations from an incandescent mantle, and named by him the *n* rays, are now shown to be present in sunlight. Their property of increasing the luminosity of feebly phosphorescent substances was utilised as a means of detection.—On the problem of transformation in Taylor's series, by M. L. **Desaint.**—On the integrals of linear partial differential equations, by M. J. **Le Roux.**—On the barometric formula of Laplace, by M. L. **Maillard.**—On the diurnal period of the *aurora borealis*, by M. Charles **Nordmann.** The intensity of the aurora is regarded as due to two factors, the intensity of the solar Hertzian waves, and the degree of ionisation of the atmosphere. The ionisation being produced by the action of the violet and ultra-violet rays, and recombination occurring during the night, the conclusion is drawn that the diurnal period of the aurora ought to be characterised by a maximum in the early hours of the morning, and this is in agreement with the observed facts.—On the generalisation of a theorem of M. Boucherot, by M. R. **Swyngedauw.**—The wave-length of the *n* rays determined by diffraction, by M. G. **Sagnac.** The refractive index for quartz for the *n* rays, given by M. Blondlot as 2·942, is confirmed; the wave-length in air is about 0·2mm., or about four times the wave-length of the longest infra-red waves discovered by Rubens.—The classification of liquids and crystals from the magnetic point of view, by M. Georges **Meslin.**—The conditions which determine the sense and magnitude of electrification by contact, by M. Jean **Perrin.** The action of H and OH ions is very great in electrical osmosis, so much so that osmosis indicates their presence with a sensibility which

may even surpass that of coloured indicators.—On the prediction of barometric variations, by M. Gabriel **Guilbert.** It has been shown that the velocity of the wind does not always correspond with the barometric gradient. These cases are called abnormal, a normal wind being defined as one which is light for a gradient of 1mm. per geographical degree, moderate for 2mm., strong for 3mm., and violent for 4mm. The study of abnormal winds has led to deductions which may be utilised practically.—On a method of crystallising slightly soluble bodies, by M. A. **de Schulten.** Dilute sulphuric acid, added to a hot dilute solution of barium chloride at the rate of 0·1 mgr. per minute, gave after a month measurable crystals of barium sulphate. Crystals of anglesite and celestine can be obtained similarly, and the method has been successfully applied to the production of several other minerals.—On the substitution of paints having zinc for a basis in the place of lead paints, by M. J. L. **Breton.**—On the so-called colloidal silver, by M. **Hanriot.**—On the fusibilities of mixtures of sulphide of antimony and sulphide of silver, by M. H. **Pelabon.** The fusibility curve of a mixture of the sulphides of antimony and silver can be constructed completely; it presents two maxima corresponding to the existence of two definite combinations, $Sb_2S_3.Ag_2S$ and $Sb_2S_3.3Ag_2S$. It shows besides three minima corresponding to three different eutectic mixtures.—On the etherification of sulphuric acid, by M. **A. Villiers.** The limits observed in the case of some mixtures of alcohol with sulphuric acid of different strengths after standing twenty-five years at the ordinary temperature are practically identical with those attained by the same mixtures after 221 days at 44° C., or 154 hours at 100° C.—On some derivatives of aminopyromucic acid and furfuranamine, by M. R. **Marquis.**—The action of phosphorus trichloride upon glycerol, by M. P. **Carré.** PCl_3 acts upon glycerol in the same manner as with glycol. The compounds $P_2O_6(C_3H_5)_2$ and $P(OH).O_2C_3H_5Cl$ are immediately decomposed by water, giving $P_2(OH)_4.O_2.C_3H_5.OH$ and $P(OH)_2.O.C_3H_5(OH)Cl$, the calcium salts of which were isolated.—The action of hydrogen sulphide upon methyl-ethyl-ketone, by M. F. **Leteur.** The compound $(C_4H_8S)_3$ has been isolated, which can be regarded as a polymer of an unknown butanethione.—On two new hydrocarbons isomeric with campholene and camphene, by MM. L. **Bouveault** and G. **Blanc.**—The synthesis of 2 : 2-dimethylglutaric acid, by M. E. E. **Blaise.**—On formic acid from the air, by M. H. **Henriet.** In a previous note the author has indicated the existence in the air of a nitrogen compound with an acid which appeared to be formic acid. The substance has now been isolated in larger quantity, and the identity of the acid with formic acid completely proved.—The distribution of some organic substances in the geranium, by MM. E. **Charabot** and G. **Lalone.** The terpene compounds of the geranium are almost entirely localised in the leaves.—Observations on phenylglycollic acid, by M. Œchsner **de Coninck.**—The action of iodine bromide on albumenoid materials and on the organic nitrogen bases, by M. A. **Mouneyrat.** Iodine bromide forms addition compounds with many substances containing nitrogen, and is not necessarily a test for the existence of the pyridine ring in the molecule.—On the presence of indoxyl in urines, by M. L. **Maillard.** A reply to a note on the same subject by M. J. Gnezda.—On some peculiarities observed in the renal tubes of *Barbus fluviatilis*, by M. J. **Audigé.**—On a criterion of irreducibility in statistical data, by MM. Charles **Henry** and Louis **Bastien.**—New expression of the law of electrical stimulation, by M. and Mme. L. **Lapicque.** The formula given by Weiss, $vt=a+bt$, where v is the voltage, t the time, and a and b constants, is found to be only roughly approximate; the experiments of the author require a term with an additional constant to be added to the formula of Weiss.—On some nuclear phenomena of secretion, by M. L. **Launoy.**—Cerebral inertia relating to the reading of printed letters, by MM. André **Broca** and D. **Sulzer.**—Observations on the treatment employed for the destruction of Pyralis of the vine, by M. Joseph **Perraud.**—New researches on the epiplasm of the Ascomycetes, by M. A. **Guilliermond.**—Researches on the nutrition of the tissues in galls, by M. C. **Houard.**—On the cave of Font-de-Gaume, and on the age of the cavern, by M. E. A. **Martel.**—On a living safety lamp, by M. Raphael **Dubois.**

DIARY OF SOCIETIES.

THURSDAY, JUNE 25.

UNIVERSITY COLLEGE MATHEMATICAL SOCIETY, at 5.30.—Some Present Aims and Prospects of Mathematical Research: E. T. Whittaker.

FRIDAY, JUNE 26

PHYSICAL SOCIETY, at 5. (University of London, South Kensington).—(1) Electrical Effects of Light upon Green Leaves; (2) Blaze-Currents, (*a*) of a Vegetable Tissue, (*b*) of an Animal Tissue; (3) Quantitative Estimation of Chloroform Vapour in Air by (*a*) Oil Absorption, (*b*) Densimetry: Dr. Waller.—The Temperature Limits of Nerve-Action in Cold-blooded and in Warm-blooded Animals: Dr. Alcock.—(1) On the Movement of Unionised Bodies in Solution in an Electric Field; (2) On the Passage of Nervous Impulses through the Central Nervous System: Dr. Hardy.

TUESDAY, JUNE 30.

SOCIETY FOR THE PROMOTION OF HELLENIC STUDIES, at 5.—Annual Meeting.

FARADAY SOCIETY (Rooms of the Chemical Society, Burlington House), at 8.—The Present Position of the Theory of Electrolysis: W. C. Dampier Whetham, F.R.S.—Chlorine Smelting, with Electrolysis: J. Swinburne.—Total and Free Energy of the Lead Accumulator: Dr. R. A. Lehfeldt.—Electrolytic Apparatus: Dr. F. Mollwo Perkin.

THURSDAY, JULY 2.

INSTITUTION OF MINING ENGINEERS, at 11 a.m.—Luxemburg and its Iron-ore Deposits: J. Walter Pearse.—The Lake Superior Iron-ore Region: Prof. Van Hise.—Mineral Resources of the State of Rio Grande do Sul, Brazil: H. Kilburn Scott.—Electric Coal-cutting: W. E. Walker.—Pneumatic and Electric Locomotives in and about Coal-mines: A. S. E. Ackermann.—Electrical Plant Failures, their Origin and Prevention: A. C. Cormack.—The Electrical Driving of Winding-gears: F. Hird.—Electric-power Distribution by Continuous Current for Mining and General Purposes in North Wales: T. P. Osborne Yale.

RÖNTGEN SOCIETY, at 8.30.—Annual General Meeting.

FRIDAY, JULY 3.

INSTITUTION OF MINING ENGINEERS, at 11.30 a.m.—Further Remarks on the Portuguese Manica Gold-field: A. R. Sawyer.—Coal-fields of the Faröe Islands: E. A. Greener.—Miners' Anæmia or Ankylostomiasis: Dr. J. S. Haldane.—Water-softening Plant: Vincent Corbett.—The Redevelopment of the Slate-trade in Ireland: O. H. Kinahan.—The Smelters of British Columbia: W. Denham Verschoyle.—The Common-sense Doctrine of Furnace-draught: H. W. Halbaum.—The Ventilation of Deep Mines: Arthur C. Murray.

CONTENTS.